



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region8

Ref: 8P-W-UIC

JUL 20 2016

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Darrell Nodland, Well Planning and Regulatory Compliance Supervisor
Marathon Oil Company
3172 Highway 22 North
Dickinson, North Dakota 58601

Re: Minor Permit Modification for Underground Injection Control Permit ND22269-10081,
Myrmidon SWD#1 Class II Disposal Well, Mountrail County, North Dakota

Dear Mr. Nodland:

On June 16, 2015, the U.S. Environmental Protection Agency Region 8 approved an Aquifer Exemption (AE) for the Inyan Kara Formation within a 2,554-foot radius of the Myrmidon SWD#1 well. During its evaluation of that exemption, the EPA determined that the cumulative volume of injected fluid should be limited to ensure that injected fluids remain within the exempted portion of the aquifer.

Please find enclosed Minor Permit Modification No. 1 for EPA Permit ND22269-10081, limiting the cumulative injection fluid volume to 65,700,000 barrels. This volume, and the corresponding 2,554-foot radius of the AE, are based on analytical modeling of injection into the perforated intervals over a 40 year period, at the anticipated daily injection rate of 4,500 barrels.

Also enclosed is a copy of the revised Appendix C for inclusion with, or replacement of, the Appendix C that was issued with the original permit on November 26, 2014.

If you have questions regarding the above action, please contact Jason Deardorff of my staff at (303) 312-6583 or (800) 227-8917, extension 312-6583.

Sincerely,

Darcy O'Connor
Acting Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

Enclosures (2)



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MINOR PERMIT MODIFICATION No. 1
Underground Injection Control (UIC) Permit No. ND22269-10081

Pursuant to Title 40 of the Code of Federal Regulations, Section 144.41(e) and Part III.B.1 of the above referenced Class II UIC) permit, a minor modification to this permit is made. Changes made are as follows:

Original Version (November 26, 2014):

* * * * *

APPENDIX C - OPERATING REQUIREMENTS

MAXIMUM INJECTION VOLUME:

There is no limitation on the number of barrels per day (bbls/day) of water that shall be injected into this well, provided further that in no case shall injection pressure exceed that limit shown in Appendix C.

* * * * *

is hereby modified to read:

* * * * *


APPENDIX C - OPERATING REQUIREMENTS

MAXIMUM INJECTION VOLUME:

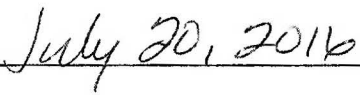
Cumulative injection volume into the Myrmidon SWD#1 well shall not exceed 65,700,000 barrels. This volume is based on modeling 40 years of injection at the anticipated daily rate of 4,500 barrels into the perforated intervals. In the event this cumulative volume limit is reached, the well shall be shut in and the Director shall be notified. Injection shall not be resumed until Permittee has requested, and the EPA has granted, an expansion of the exempted portion of the Inyan Kara Formation and modified the cumulative injection volume limit in this Permit.

For additional information about the modeling used or the Aquifer Exemption issued for the Myrmidon SWD#1 well on June 16, 2015, the reader is referred to the EPA's Aquifer Exemption Final Record of Decision and supporting documentation in EPA Region 8 permit file ND22269-10081.

* * * * *


Darcy O'Connor
Acting Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

Date



APPENDIX C

OPERATING REQUIREMENTS

MAXIMUM ALLOWABLE INJECTION PRESSURE:

Maximum Allowable Injection Pressure (MAIP) as measured at the surface shall not exceed the pressure listed below.

WELL NAME	MAIP (surface)
Myrmidon SWD#1	1,510 psig

INJECTION INTERVAL(S):

Injection is permitted only within the approved injection interval listed below. Injection perforations may be altered provided they remain within the approved injection interval and the Permittee provides notice to the Director in accordance with Part II, Section A, Paragraph 6. Specific injection perforations can be found in Appendix A.

FORMATION NAME	APPROVED INJECTION INTERVAL (KB, ft)		FRACTURE GRADIENT
	TOP	BOTTOM	(psi/ft)
Inyan Kara Formation	5,137	5,533	0.800

ANNULUS PRESSURE:

The annulus pressure shall be maintained at zero (0) psi as measured at the wellhead. If this pressure cannot be maintained, the Permittee shall follow the procedures listed under Part II, Section C, 6 of this permit.

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